CLAIMS

1. A method of applying a protective layer forming material by rolling a roller (48) mounted on a roller mechanism (34) over a surface of a workpiece (14), using a trainable coating apparatus (16a) disposed near a conveying line (12) for conveying the workpiece (14), and applying the protective layer forming material in a liquid form to the surface of the workpiece (14), which is supplied to said roller (48) and which will act as a peelable protective layer after being dried, said method comprising the steps of:

when said roller (48) is rolled over a curved area of said workpiece (14), rolling said roller (48) at a speed lower than when the roller (48) is rolled over a substantially flat area of the workpiece (14); and

when said roller (48) is rolled over an area having a groove (504) of said workpiece (14), orienting an axis (C2) of said roller (48) substantially parallel to a direction in which said groove (504) extends, moving said roller (48) in a direction substantially perpendicular to the direction in which said groove (504) extends, pressing said roller (48) against said groove (504), and rolling said roller (48) at a speed lower than when the roller (48) is rolled over a substantially flat area of the workpiece (14).

2. A method according to claim 1, wherein said coating

apparatus (16a) comprises a robot, and said workpiece (14) comprises a vehicle.

3. A method according to claim 1, wherein said roller mechanism (34) has a swinging mechanism for swinging said roller (48) about a swing shaft (82) in a direction perpendicular to said axis (C2) of said roller (48), wherein a maximum angle (θ2) for a tilt angle (θ) of a straight line interconnecting said swing shaft (82) and the axis (C2) of said roller (48), with respect to a surface of said workpiece (14) to be coated, is set to an increased value depending on the magnitude of curvature of said surface of said workpiece (14) to be coated.

4. A method according to claim 3, wherein said tilt angle (θ) is set at a value ranging from 25° to 35° for a surface to be coated having smallest curvature, and said tilt angle (θ) is set at a value ranging from 25° to 65° for a surface to be coated having greatest curvature.

5. A method according to claim 3, wherein said coating apparatus (16a) is moved at a lower speed as said tilt angle (θ) increases.

6. A method according to claim 1, utilizing a pressing means (78, 80) for pressing said roller (48) against the surface of the workpiece (14) to be coated.

7. A method according to claim 1, wherein said protective layer forming material comprises an acrylic copolymer as a chief component.

8. A method of applying a protective layer forming material by rolling a roller (48) mounted on a roller mechanism (34) over a surface of a workpiece (14), using a trainable coating apparatus (16a) disposed near a conveying line (12) for conveying the workpiece (14), and applying the protective layer forming material in a liquid form to the surface of the workpiece (14), which is supplied to said roller (48) and which will act as a peelable protective layer after being dried, said method comprising the steps of:

when said roller (48) mounted on said roller mechanism (34) is pressed against and rolled over said workpiece (14) near an opening edge (15) that defines an opening (14d) in the workpiece (14), setting an axis (C2) of said roller (48) at an acute angle to a direction in which said opening edge (15) extends; and

rolling said roller (48) along said opening edge (15) to apply the protective layer forming material to the surface of said workpiece (14) near said opening (14d) by said coating apparatus (16a).

9. A method according to claim 8, wherein said coating apparatus (16a) comprises a robot, and said workpiece (14)

comprises a vehicle.

10. A method according to claim 8, wherein said protective layer forming material comprises an acrylic copolymer as a chief component.

11. A method of applying a protective layer forming material by rolling a roller (48) mounted on a roller mechanism (34) over a surface of a workpiece (14), using a trainable coating apparatus (16a) disposed near a conveying line (12) for conveying the workpiece (14), and applying the protective layer forming material in a liquid form to the surface of the workpiece, which is supplied to said roller (48) and which will act as a peelable protective layer after being dried, said method comprising the steps of:

when said roller (48) mounted on said roller mechanism (34) is pressed against and rolled over said workpiece (14) near an opening edge (15) that defines an opening (14d) in the workpiece (14), inclining said roller (48) to press one end of the roller (48) against the surface of said workpiece (14), while allowing the other end of the roller (48) to float over said opening (14d); and

rolling said roller (48) along said opening edge (15) to apply the protective layer forming material to the surface of said workpiece (14) near said opening (14d) by said coating apparatus (16a).

12. A method according to claim 11, wherein said coating apparatus (16a) comprises a robot, and said workpiece (14) comprises a vehicle.

13. A method according to claim 11, wherein said protective layer forming material comprises an acrylic copolymer as a chief component.